Q
11
N524

TRANSACTIONS
of
THE NEW YORK ACADEMY OF SCIENCES

SER. II, VOL. 8 APRIL, 1946 No. 6

SECTION OF GEOLOGY AND MINERALOGY

MARCH 4, 1946

DOCTOR H. T. U. SMITH, Geologist, U. S. Geological Survey, Washington, D. C.: *Sand Dunes.*[1]

In the United States, sand dune areas cover more than 40,000 square miles, or approximately 1.4 per cent of the total land area of the country. The largest areas are in the Great Plains, mainly in Nebraska, Kansas, and eastern Colorado. Smaller areas occur in intermontane basins and plateaus, in the Pacific coastal area, along the southern and eastern shores of Lake Michigan, in adjoining lake states, and along the Atlantic Coast.

Primary dune forms may be grouped in two main classes: (1) those in bare, free sand, and (2) those developed in the presence of vegetation. The former occur mainly in desert regions, and comprise barchans, transverse dune ridges, certain varieties of longitudinal dunes (dunes parallel to wind direction), wind-shadow dunes controlled by topographic obstacles, and various irregular forms. Of these, the barchans and transverse dunes are migratory, the others essentially non-migratory. In the desert areas of western United States, transverse dune ridges are, perhaps, the commonest type, and barchans, as in other desert areas, are comparatively rare. In the Sahara, however, longitudinal dunes are more prevalent, and these show considerable diversity both in size and in details of form. There also are found cer-

[1] Published by permission of the Director of the Geological Survey, U. S. Department of the Interior.

TRANSACTIONS of The New York Academy of Sciences, Series II, Volume 8, No. 6, April, 1946.
This publication is distributed to Members and is published monthly from November to June, inclusive, at 109 West Chestnut Street, Lancaster, Pa., by The New York Academy of Sciences, Seventy-ninth Street and Central Park West, New York City.
Editor: Roy Waldo Miner.
Assistant Editors: Michael Demarest, Lothar N. Salin.
Executive Secretary: Eunice Thomas Miner.
Entered as second-class matter December 2, 1938, at the post office at Lancaster, Pa., under the act of August 24, 1912.

tain special dune forms, the "fulji," or deep depression resembling the imprint of a giant horse's hoof, and the "rhourd," or rudely pyramidal stationary dune with radiating, sharp-crested spurs.

Dunes of the second class, those developed in the presence of vegetation (phytogenic), occur in coastal areas and in semi-arid plains regions, and comprise U-, V-, and Y-shaped forms, various modifications and combinations of these, certain varieties of longitudinal dunes, "fore-dunes" bordering sandy beaches, and minor irregular forms. Dunes of this class, although subject to growth in a down-wind direction, are essentially non-migratory. Their development is best described in terms of an ideal dune cycle, comprising eolian and eluvial phases. In the eolian phase, wind action is dominant and sand is blown from bare source area to a bordering zone of accumulation, where vegetation checks sand drift. Where the vegetation is of such a type as to resist choking by sand, its upward growth progressively traps more sand, and a definite mound or ridge develops. As the sand accumulates, variations in the resistance offered by the vegetation may lead to localized "break-through" of the sand, permitting differential erosion and transportation of sand and consequent formation of a bulge or salient in the dune form. Under favorable conditions, the growth and extension of this salient may entirely overshadow the antecedent form.

The eolian phase may be ended, at any stage, through stabilization of the dune and source area by vegetation. Thereafter, gradual degradation by soil building, creep, rainwash, and related processes constitutes the eluvial phase of development. Contours are rounded, hollows are filled, slopes are lowered, relief is reduced, the soil zone thickens, and, at some stage, thorough-going surface drainage may be established. Dune forms become less and less distinct and finally unrecognizable, as the topography passes through stages of youth, maturity, and old age of the eluvial phase.

The eluvial phase may be interrupted, at any stage, by breaking of the vegetal cover and renewal of wind attack, thus initiating the eolian phase of a new cycle. Primary dune forms are dissected by secondary blowouts, and a wide range of forms may develop.

Continued alternations of eolian and eluvial development lead to increasing topographic complexity, and in many areas, the details of geomorphic history become undecipherable. In the semi-arid Great Plains

Exch.
N.Y. Academy of Sciences
6/14/46

of this country, examples of all stages of the above scheme of development are found; the major period or periods of dune building, however, belong to the past, and wind action, at present, is on a very small scale. Dunes are predominantly "fossil" forms, also, in the more humid areas of western Europe, but complexity due to multi-cycle history is less common.

Correction

In Transactions for February (Vol. 8, No. 4) page 168 at the end of the footnote, instead of "the most recent prize was awarded in 1938 to Hans Bethe" read "the most recent prizes were awarded in 1938 to Hans Bethe and in 1940 to R. E. Marshak and Hans Bethe."

SECTION OF BIOLOGY

MARCH 11, 1946

DOCTOR F. DURAN-REYNALS, Yale University School of Medicine, New Haven, Conn.: *Virus Variation in Relation to the Cancer Problem.* (This lecture was illustrated by lantern slides.)

Cancer, like so many other diseases, seems to occur in some species preferably to others. We can, thus, speak of human cancer, murine cancer, and avian cancer, as the three main groups. The latter offers many analogies with mammalian cancer, with the added feature that viruses, as causative agents, are easily demonstrable in many tumors.

It has been shown that sarcoma viruses of chickens, with infecting embryos or chicks, do not induce cancer, but induce a destructive disease of a hemorrhagic sort, comparable to the disease caused by inflammatory, necrotizing viruses. Fundamentally, the same is true for the viruses of chicken lymphomatosis, rabbit fibroma, and sheep pox. So, we have a group of "neoplastic" viruses, which behave as neoplastic only when infecting adult hosts. The reason for this duality of effect is to be found in the extreme susceptibility of the embryo and the young, in contrast to the resistance of the adult and the old. Treatment of young chicks infected with a sarcoma virus with serum from old chickens makes the chick react to the virus much as adults do.

Further, it has been shown that chicken tumor viruses are endowed with the property of varying or mutating in association with the infection of foreign species, but this property is only manifest when the virus comes from a tumor, grown in an adult or old host, which provides an environment somewhat adverse to the virus, without, as yet, reaching the point where the environment is so unfavorable as to make large tumors regress. The phenomenon is analogous to the development of variants in ageing bacterial cultures. Other manifestations of the influence of age on cancer are the difficult transplantability of either spontaneous or transplantable tumors, and the lack of filtrability of the latter tumors from old hosts.

In summary, old age, on the one hand, offers a ground favorable to mutation or variation of viruses into cancer viruses, and on the other hand, is a ground fundamentally adverse to the development of

infection. Indeed, if the resistance of the old were just a degree higher, then complete resistance against cancer viruses would be achieved. Neoplastic manifestation of some viruses and variation of these viruses are the first steps leading to tumor suppression.

SECTION OF PSYCHOLOGY

March 18, 1946

Doctor H. L. Hollingworth, Professor of Psychology, Columbia University, New York, N. Y.: *Experimental Psychology and Ethics.*

In the report to be made here, we are interested, not in the bearing of ethics on the activities of experimental psychology, but in the application of certain experimental methods to ethical topics. Ethics has, of course, an old-fashioned sound, and some may feel that experimental psychology should occupy itself with livelier issues. There are, however, cogent reasons for reviving an interest in ethics.

Those called on to offer guidance to the young now find that they often lack adherence to authoritarian codes, such as their parents knew. They also lack the reflective experience, which their parents may have had, in the historical and critical study of ethical systems. How can they, then, be counselled, lacking both faith and dialectic?

There are also questions concerning the implications of contemporary systems of psychology for moral problems and for the explanation of imperative behavior. For there are imperative acts and there is a sense of obligation. How does your favorite system of psychology handle them? Or does it sidestep such issues as value?

Finally, there are notable individual differences in the appreciation of ethical demands, in the discrimination of varieties of obligation, and in the readiness to assume moral responsibility. Should we not have better instruments for early diagnosis and measurement of such peculiarities and for their correlation with other personality traits? It is with such questions in mind that we have undertaken to approach certain ethical topics in a somewhat experimental fashion.

A survey has been made of the psychological basis of the sense of obligation and of individual differences in insight into the types of imperative conduct. In a preliminary inquiry, adults were asked to classify imperative propositions (statements containing the word *ought*) into as many categories as there seemed to be. They were then asked to describe or characterize these groups or categories. Ten major categories were revealed: the imperatives or oughts of Inference,

Gestalt, Esthetics, Social Welfare, Utility, Duty, Safety, Convention, Justice, and Legislation.

These varieties of imperative appear to include the whole of human behavior, so that obligation is, in a sense, characteristic of all our acts and conclusions, and value is not a dissociated realm of experience. These chief categories, differing as they may in subject matter and genesis, have in common the assertion of a particular item as the effective technique for the mitigation of misery, for the relief of a distress that is either expressed or implied.

The systems of psychology known as structuralism, behaviorism, gestalt theory, and purposivism do not provide adequate basis for the understanding of these fundamental imperatives, nor for the basis of the sense of obligation. Structuralism is interested only in the momentary, sensory description of an experience of obligation, with no concern for genesis or for values. Behaviorism, in its naïve historical form, pays attention only to sequence of stimulus and movement. It might distinguish positive from negative reactions and between native and learned connections, as well as between slow and rapid sequences. But the obligation, the imperative, could, for this point of view, be nothing more than the coerciveness of a reflex; the feeling of obligation, along with all other feelings, would have to be repudiated. For more sophisticated and contemporary behaviorists, conduct has, for its outcome, what is called need-reduction. But needs are described as the lack of commodities, and the mere non-existence of something would appear wholly unable to produce anything in the way of action. It is not the absence of a commodity, but the positive presence of a misery, that motivates conduct.

Gestalt theory is so pre-occupied with the stresses and strains of field dynamics that it overlooks the actual individual distresses that motivate our acts and give force to the facts of what it calls "requiredness." The alleged instincts of the hormic psychology do not accord, in any clear fashion, with the list of fundamental imperatives. Even if they did, they would be wholly *ex-post facto* ways of describing our behavior, not ways of producing it. The purposivist's "sentiments" are more flexible, in this respect, since any kind of a sentiment can be formed about any kind of a thing. But the sentiments, also, are merely convenient summaries of the ways we act, not explanations of why we do so.

Our analysis leads to three fundamental principles that have been

found useful in summarizing psychological facts, in various other fields, and are found to be equally useful in this connection. These are the principles that: (1) All motives are distresses; (2) Learning is cue reduction; and (3) Control is a function of scope.

Applied to the analysis of the fundamental varieties of obligation, these principles yield a theory of value and a system of ethical evaluation. They give a helpful account of the nature of the good, the criteria of the moral, the meaning of happiness; and show the importance, also, of socially recognized hierarchies of distress and of techniques of alleviation. Such an account is offered as a substitute for the cruder historic systems of hedonism, asceticism, utilitarianism, intuitionism, authoritarianism, logical idealism, and the like.

Important in this account, among other features, is the rejection of the classical, bi-polar theory of motivation and affection. Distresses are conceived as primary, and pleasure is the relief from initial and instigating distress. Happiness, moreover, is not mere absence of distress; it is the possession of a repertoire of effective techniques for eliminating the distresses incident to being alive. The supreme happiness is the level of playful mastery on which the individual seeks out or devises difficulties for the sheer pleasure of mastering them. Such a viewpoint emphasizes the role of education as against that of social reform, and encourages the individual to be the instrument of his own salvation.

The moral quality of an act is determined by the completeness, the promptness, and the permanence with which it relieves the distress which is its motive, with a minimum of correlated misery in any creature, and by the recognized level of that irritant and of that technique in the relevant, individual and social hierarchies of distresses and of techniques.

The distresses underlying the imperatives of logical inference are, of course, such miseries as doubt, uncertainty, and curiosity. Basic to the gestalt imperatives, are the discontents of incompleteness and inappropriateness. Esthetic imperatives relate to the relief of such dissatisfactions as those of ugliness, discord, and asymmetry. Imperatives of Welfare and of Safety are motivated by such calamities as pain, anxiety, hunger, failure, illness, and similar varieties of suffering, including the pangs of sympathy. The oughts of Utility show how to avoid waste and defeat; those of Convention, how to avoid social chagrin, and those of Legislation, how to escape the inconveniences of legal en-

tanglement. Under the category of Duty, come all the 'oughts' based on codes, ideals, hero worship, religious precepts. The imperatives of Justice have not been given adequate psychological attention. Apparently, it is the feeling of injustice, rather than a sense of justice, that really operates. The experience of injustice may be based on the kinesthetic appreciation of imbalance in the tensions of our bi-laterally symmetrical musculature.

Under any circumstances, what we commonly call *conscience* may underlie the imperatives of any of these categories. To all of them, also, we find such words as good and bad, right and wrong, equally applicable. It is for such reasons that we advocate the extension of such terms as moral and ethical to all of these classifications and obligations. We find no essential difference between the 'oughts' of expectation, the 'oughts' of responsibility and the 'oughts' of necessity, although individuals differ importantly in their capacity to appreciate such differences as do exist.

Tentative experimental methods or tests have been devised for the measurement of individual differences in moral insight, as revealed by the appreciation of these ten fundamental categories. Typical results are now available from such methods, in the case of several hundred persons varying in age, education, and intelligence. Several alternative procedures have been compared, and a form chosen which seems to differentiate on various developmental levels and to require not more than half an hour for its administration. Quantitative scores ranging from zero to one hundred points make comparative study possible.

The range of moral insight, as thus assessed on the same educational or intelligence level, is surprising. So, also, is the relatively advanced level required before a clear understanding and recognition of these categories of obligation is achieved. The existence of such marked individual differences and the qualitative moral confusions exhibited by individuals suggest the desirability of improved methods of moral instruction. The high school years are indicated as the appropriate time for such instruction and measurement. A feasible course of study may be based on the analysis and comparison of the ten fundamental categories. Thus, the obligations or 'oughts' of esthetics may be surveyed; likewise, the oughts of utility, of convention, and so on. These departments may, then, be contrasted, and practice may be given in their recognition.

Insight of the kind here measured appears to follow a developmental curve which it would be valuable to know more about in detail. Attempts are now being made, not only to perfect the procedure and materials, but also to secure results from groups varying widely in developmental status, in the endeavor to construct such a curve.

In these preliminary experiments, several rather different procedures have been tried out and compared. Two sheets are here reproduced, constituting Plan 4, which appears to be the best of those yet tried out. The first sheet is a Set of Instructions, with illustrative examples for each of the fundamental categories emerging from the results secured by Plan 1. The second sheet gives 50 imperatives (statements containing the word *'ought'*), which are to be classified according to the Instructions. Standards of correctness derived from the concensus of opinion of a group of sophisticated adults enable each classification to be scored right or wrong. Two points credit are given for each correct classification, according to this standard key.

Other plans tried out experimentally have the following characteristics: Plan 1: only statements provided, the subject to discover his own categories and classify the statements under them. Plan 2: names of ten standard categories given, and a brief definition of each, with no examples. Plan 3: ten sets of two propositions, each pair illustrating one of our standard categories, but the category is neither named nor defined. The plan finally used, and illustrated here, is essentially a combination of plans 2 and 3, and appears to have many advantages. Plan 1 had to be abandoned, because of the inability of even educated adult subjects to handle it.

A Sample Instruction Sheet (Plan 4)

INSTRUCTIONS

In PART I are given several varieties of OUGHT or kinds of obligation. Each is indicated by a capital letter, by a brief description, and by a sample proposition. Read this list carefully.

Now take PART II. On it are 50 propositions, all containing the word 'OUGHT.' In front of each proposition, put the capital letter showing to which variety or category of OUGHT that proposition belongs. The description and sample of PART I may be referred to for guidance. If you need to, you may put more than one letter before a proposition, but in that case, draw a line under the letter that you think fits best.

PART I. CATEGORIES

B—BEAUTY. Esthetic sense or personal taste prefers it.
"This green hat ought not to have a blue ribbon on it."

C—CUSTOM. Conventional propriety, etiquette or custom requires it.
"Those in mourning ought to wear black."

D—DUTY. Religious scruples, conscience or ideals are involved.
"Children ought to honor and obey their parents."

G—COMPLETENESS. Some occasion, situation or pattern calls for it.
"Such music ought really to be played on a pipe organ."

I—INFERENCE. Certain premises or facts lead logically to it.
"The morning is clear; we ought to have a fine day."

J—JUSTICE. Fairness and equity demand that this be.
"Teachers ought to be willing to work for small salaries."

L—LAW. Legislation, police rules, or statutes require this.
"If you carry a pistol you ought to have a police permit."

S—SAFETY. For the hygiene, success, safety, or well-being of the person.
"There ought to be a guard rail on these stairs."

U—UTILITY. Expediency, usefulness, or efficiency are the reasons.
"You ought to cover these bulbs before cold weather."

W—WELFARE. To make the world better for people in general.
"People who are closely related ought not to marry."

PART II. PROPOSITIONS

1—We won the game and we ought to celebrate.
2—That picture ought to have a wider frame.
3—Every man ought to have a chance to work for his livelihood.
4—A room like this ought to be painted a lighter color.
5—In introducing people the younger ought to be presented to the older.
6—To vote in November you ought to be over 21 years of age.
7—Everyone ought to keep his promises.
8—Capital punishment ought to be abolished.
9—This pudding ought to have more sugar in it.
10—One ought to be careful in the choice of friends.
11—You ought not to labor on the Sabbath day.
12—Those driving cars on public roads ought to have drivers' licenses.
13—You ought not to dive with your eyes shut.
14—Real estate owners ought to be responsible for taxes assessed against their property.
15—The wedding ring ought to be worn on the third finger of the left hand.
16—The school term ought to be longer than it is.
17—If Tuesday was Christmas this ought to be New Year's Day.
18—Stripes in a fat man's suit ought not to be horizontal.
19—Some cure for that disease ought to be discovered.
20—Income tax ought to take into account a man's age and obligations.
21—A man like that ought to be whipped.
22—Defective vision ought to be detected at an early age.
23—Every dog ought to be entitled to two bites.
24—The average room temperature ought to be about 68 degrees.
25—The fish ought to bite well this morning.
26—Women and men ought to receive the same pay.
27—One ought not to take revenge into his own hands.
28—A fur coat ought to cost more than a woolen one.

29—According to traffic signs cars on this road ought not to go over 25 miles an hour.
30—Every family ought to live within its income.
31—People who are going to be married in New York ought to secure a marriage license from the proper authorities.
32—That black cover ought to have a gold border.
33—You ought to wear heavier clothing in the winter.
34—The strong ought to bear the infirmities of the weak.
35—We ought to catch the bus if we take this short-cut.
36—A man ought to tell the truth regardless of consequences.
37—This knife ought to be sharpened.
38—This axe ought to have a longer handle.
39—The garden soil ought to be cultivated often but not too deep.
40—Arithmetic ought to precede algebra.
41—Garden peas ought to be soaked thoroughly before planting.
42—You ought to have your hair cut.
43—A buck saw ought to be loosened up a little when not being used.
44—People ought to mate with those whose traits are similar to theirs.
45—When walking with a lady a man ought to take the outside next to the curb.
46—You ought to have seen him make a fool of himself.
47—Where there is so much smoke there ought to be some fire.
48—With a full dress suit a man ought to wear a white tie.
49—A good classification ought to provide for all the actual cases.
50—In America a driver ought to keep to the right side of the road.

Illustrative results, from college juniors and seniors, may be cited as typical for that level of intelligence and education. Using one of the plans finally chosen as most workable, the scores from the classification under appropriate moral categories of 50 statements containing the word "ought" range from 68 to 94 points, 2 points credit being given for each correct classification. The median score for this college group is 82.

High and low groups, according to scores on intelligence tests, give different medians, the difference being 12 points, when the upper half is compared with the lower half. Reliability, as shown by the correlation of two slightly different forms of the test, is .85.

There is a correlation of .50 with scholastic aptitude tests taken in freshman year. However, students with the same scholastic aptitude scores, say near 500, which is average, range in insight scores from 60 to 90, that is, they vary as much as the entire unselected group. The indication, then, is that, while there is a positive correlation between such scores as those here considered and verbal intelligence scores, the

two are far from being identical. One of the problems has to do with the nature of the other determinants, aside from intelligence scores.

Using the same plan, representative high school students in grades 10 and 11 give a median score of only 54 points; half of the cases fall below the lowest score for the college group. A group of high school students, from a school laying special emphasis on moral instruction, gave a better median (62 points), and scores in the lower brackets were wholly missing. High school students also made a somewhat different use of the ten possible categories, as compared with college students, and this difference deserves more careful qualitative analysis.

The distributions of scores for these three groups are shown in FIGURE 1. The graphs are placed on the same base scale at the bottom of the figure, and the median scores for each group are indicated on the base lines of the respective graphs. The numbers of cases are small, but the distributions are fairly regular. Curiously enough, when the three graphs are compared it will be observed that the column showing the mode of each group represents the column in which are to be found the lowest scores of the group just above.

The distributions of the classifications over the various categories and the analysis of individual instances reveal extremely confused comprehension of the principles on which obligation is based. Boys and girls, so far as at present determined, give similar scores, and there is no clear age difference from 15 to 18. It is such results that suggest high school as the appropriate place for the introduction of a new type of course of instruction in the principles involved in moral obligation.

Several plans have been tried out in the devising of a quantitative test, the plans differing in the Instruction sheet. The one here reproduced has been found to have several distinct advantages, and further studies are to be based, in general, on this form of instruction. It may appear also desirable to revise some of the items in the test sheet, and, perhaps, to reduce the number of items employed.

In the form here given, and with the 50 items on the present test sheet, crediting 2 points for each correct item, the median score of presumably average high school students (10th and 11th grade) is near 50 points; the median score of specially selected high school students in similar grades is near 60 points; the median score by juniors and seniors in Barnard College is near 80 points. There is indication that this plan can be used lower down in the educational scale, but scores from pupils in elementary schools are not yet available.

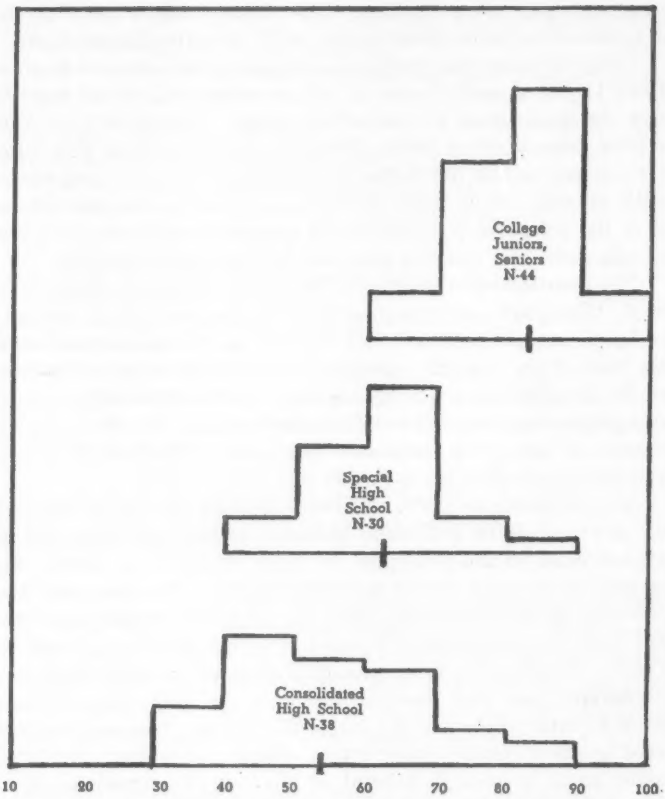

FIGURE 1. Distribution of Scores and Medians of three comparable groups.

It is believed that such tests may not only serve the purpose of initial diagnosis of degree of ethical insight, but may also be used to measure the progress made, as the result of special moral instruction, increase in age or education, and the like.

Of our preliminary forms, Plan 2 and Plan 4 are found to give the same scores on comparable groups. Combining all the groups that used either of these two Forms gives our most reliable figures for the

high school and the college groups, respectively. These figures are as follows:

	High School	*College*
Highest score	88	98
75 centile	66	86
Median Score	58	84
25 centile	46	76
Lowest Score	30	54
Number of Cases	68	70

The four quartiles, from high to low, might be designated by letter grades, such as A, B, C, and D. These letter grades might be explained as meaning, Superior, Good, Fair, and Poor. Tentative scales, based on the table just given, would then be as follows:

	High School	*College*
Top Quartile, SUPERIOR.	67–88	87–98
Second Quartile, GOOD...	58–66	84–86
Third Quartile, FAIR.....	46–57	76–83
Lowest Quartile, POOR....	30–45	54–75
Lower Scores, FAILURE..	Below 30	Below 54

In scoring, the individual's classification of the 50 items is compared with the standard key. Credit of 2 points is given for each correct item. When more than one answer is shown by the key to be correct, credit is given if either of these is indicated.

The degree of confusion experienced, even by fairly sophisticated people, in trying to make these discriminations may be briefly illustrated by a few random samples from the papers of college juniors and seniors. Here, for example, is one who thinks that the imperatives that determine the color of a room, the length of the school term, the sequence of arithmetic and algebra, and the mating of people with similar traits, all belong together under the category of Justice. Wearing the wedding ring on the conventional finger, she classifies under Beauty; loosening up an unused buck-saw belongs under Safety and Hygiene; and it is because of Social Welfare, that where there is so much smoke there ought to be some fire. On the other hand, telling the

truth, regardless of consequences, is classified as a Convention. What degree of moral understanding is possessed by such a person?

But she is not alone. Here is another who thinks that the imperatives dealing with the length of the school term, the occurrence of the New Year a week after Christmas, the presence of fire where there is so much smoke, the cost of a fur coat, and the desirability of using a short cut in order to catch the bus, all belong under the category of Esthetics, and she calls them all cases of Beauty.

Even more grotesque results may be found among the high school classifications, but there is no need to exploit them here. Such errors are not to be excused by the fact that sometimes one can see what lies behind them. Something always lies behind a boner, but usually it is just plain ignorance. Ignorance, in the cases we are here considering, means lack of moral judgment, weak ethical insight, clouded perception of the motives of conduct.

This method differs from previous studies of ethical insight in that principles of evaluation are considered, rather than items of conduct. The procedure is based on the conviction that, no matter how decent conduct may be, it does not really have moral quality without insight into the principles underlying the imperatives (obligations) that justify it. The present experimental results are tentative only, but they appear to deserve elaboration, repetition, and application to a larger number of cases and a greater variety of circumstances. Correlation of the quantitative scores with other personality measurements would also be interesting.

Regardless of the validity of these tentative quantitative results, the qualitative analysis of the meanings of ought and the comparison of the list of standard categories of obligation are believed to constitute a useful and new approach to problems of moral evaluation. Numerous circumstances and peculiarities of our present era give a new approach to ethics a very genuine value.

Another Sample Instruction Sheet (Plan 3)

INSTRUCTIONS

In PART I, are given several varieties of OUGHT or kinds of *obligation*. Each is indicated by a capital letter and two samples are given for each. The samples belong together, because they illustrate the same kind of OUGHT. First read this list through carefully.

Now take PART II. It contains 50 new propositions, each containing the word 'OUGHT.' In front of each proposition put the key letter (B or C or D etc.)

showing with which pair of samples on the Instruction Sheet the new proposition belongs. Consult the Instruction Sheet as often as you like, and take all the time you need. When in doubt, do the best you can. If you need to, you may put more than one letter in front of a proposition, but in this case *underline* the one you think fits best.

Part I. SAMPLES

B—This green hat ought not to have a blue ribbon on it.
To be pleasant this room ought to have windows on two sides.

C—Those in mourning ought to wear black.
The guest of honor ought to be seated at the host's right.

E—Children ought to honor and obey their parents.
We ought not to covet our neighbor's possessions.

G—Such music ought really to be played on a pipe organ.
Children ought to be seen and not heard.

I—The morning is clear; we ought to have a fine day.
This ought to be a better automobile than that.

J—Teachers ought to be willing to work for small salaries.
Anyone ought to be satisfied with 80 years of life.

L—Your car ought to have a license plate on it.
If you carry a revolver you ought to have a police permit.

S—Everyone ought to sleep at least eight hours a day.
There ought to be a guard rail on these stairs.

U—You ought to grip the handle more loosely.
You ought to cover these bulbs before cold weather.

W—People who are closely related ought not to marry.
Feeble-minded and insane ought to be prevented from having children.

Part II. PROPOSITIONS

1—The morning is clear; we ought to have a fine day.
2—This ought to be the road to Boston.
3—Children ought to obey their parents.
4—This ought to be about where I lost it.
5—They ought not to impose such burdens on the young.
6—We ought to render unto Caesar the things that are Caesar's.
7—Teachers ought to be willing to work for small salaries.
8—Children ought to be seen rather than heard.
9—The war ought to be over in a year.
10—That ought to be plenty of material for an overcoat.
11—Anyone ought to be satisfied with 80 years of life.
12—This ought to be a better automobile than that.
13—The pie ought to be done by this time.
14—We ought to start today if we want to be there by Friday.
15—A bed built like that ought to be very comfortable.
16—This piece of string ought to be long enough.
17—Eight tons of coal ought to heat that house for the winter.
18—Youth ought to be patient with the prejudices of the aged.
19—With good treatment this pen ought to last a life-time.
20—You ought to have been able to buy it for half that price.

21—There ought to be a law against that.
22—Five dollars ought to be a big enough allowance for any boy.
23—The climate of Arizona ought to improve your health.
24—Everyone ought to sleep at least eight hours a day.
25—You ought to brush your clothes before packing them away.
26—You ought to hang your tools up, not leave them lying around.
27—With his constitution he ought to live at least until morning.
28—Every room ought to have windows on at least two sides.
29—There ought to be a guard rail on these stairs.
30—People ought to be allowed to vote after their 18th birthday.
31—You really ought to have an extra blanket handy.
32—Every flesh wound ought to be kept clean.
33—If you observe these precautions there ought to be no danger.
34—A child of that age ought to be able to talk.
35—All motor cars ought to have effective brakes.
36—Six cylinders ought to make a car more flexible than four.
37—You ought to grip the handle more loosely.
38—This road ought to be paved.
39—Everyone ought to have a hobby as well as a main occupation.
40—Two ounces of it ought to be enough to kill a dog.
41—The chimney damper ought to be open while coal is being added to the furnace.
42—Frank would be better but John ought to be able to do the job.
43—The text is all right but the footnotes ought to be in smaller type.
44—On that salary he ought to live very comfortably.
45—We have done many things we ought not to have done.
46—People who are closely related ought not to marry.
47—Verbal tests ought to be superior to motor tests in measuring intelligence.
48—A statistical graph ought to be intelligible without textual explanation.
49—Feeble-minded and insane ought to be prevented from reproducing.
50—An oration ought to begin calmly and work up to a strong climax.

SECTION OF ANTHROPOLOGY

MARCH 25, 1946

DOCTOR CARL WITHERS, Brooklyn College, Brooklyn, N. Y.: *The Folklore of a Small Town.*

(This paper will be published in the May issue of TRANSACTIONS.)

SECTIONS OF BIOLOGY AND PSYCHOLOGY

MARCH 1, 1946

Conference on *"Physiological and Psychological Factors in Sex Behavior."*

The Sections of Biology and Psychology held a Conference on "Physiological and Psychological Factors in Sex Behavior." Doctor A. H. Maslow, Brooklyn College, Brooklyn, N. Y., was the Conference Chairman, in charge of the meeting.

The program consisted of the following papers:

"Animal Endocrines in Relation to Sex Behavior," by W. C. Young, Cedar Crest College, Allentown, Pennsylvania.

"Sex Behavior in Primates," by William Galt, New York, N. Y.

"Sex Behavior in Animals in General," by Frank Beach, American Museum of Natural History, New York, N. Y.

"Normal Sex Behavior in Humans," by Alfred Kinsey, Indiana University, Bloomington, Indiana.

"Aberrant Sex Behavior in Humans," by Morris Hermann, New York University College of Medicine, New York, N. Y.

"Sex and Culture," by Gregory Bateson, Institute for Intercultural Studies, New York, N. Y.

SECTION OF BIOLOGY

MARCH 15 AND 16, 1946

Conference on *"The Relation of Diseases in the Lower Animals to Human Welfare."*

The Section of Biology held a Conference on "The Relation of Diseases in the Lower Animals to Human Welfare." Doctor William A. Hagen, New York State Veterinary College, Cornell University, New York, N. Y., was the Conference Chairman, in charge of the meeting.

The program consisted of the following papers:

FRIDAY, MARCH 15

"Introduction to the Conference," by William A. Hagen.

"Rabies," by Harald N. Johnson, International Health Division, Rockefeller Foundation, New York, N. Y.

"Equine Encephalomyelitis," by Raymond A. Kelser, School of Veterinary Medicine, University of Pennsylvania, Philadelphia, Pennsylvania.

"Psittacosis and Ornithosis," by Herald R. Cox, The Lederle Laboratories, Pearl River, N. Y.

"The Relation of Brucellosis to Human Welfare," by I. Forest Huddleson, School of Veterinary Medicine, Michigan State College, East Lansing, Michigan.

"The Prevention of Plague in the Light of Newer Knowledge," by Karl F. Meyer, The Medical Center, University of California, San Francisco, California.

SATURDAY, MARCH 16

"Animal Tuberculosis and Its Relation to the Disease in Man," by William H. Feldman, The Mayo Foundation, Rochester, Minnesota.

"Anthrax in Animals and its Relationship to the Disease in Man," by C. D. Stein, Bureau of Animal Industry, U. S. Department of Agriculture, Washington, D. C.

"Erysipelothrix Rhusiopathiae Infection in Swine and in Human Beings," by Joseph V. Klauder, Philadelphia, Pennsylvania.

"Animal Parasites Transmissible to Man," by Willard H. Wright, U. S. Public Health Service, National Institute of Health, Bethesda, Maryland.

NEW MEMBERS

ELECTED MARCH 28, 1946

SUSTAINING MEMBERSHIP

Cathcart, William H., Ph.D., Food Technology. Director of Laboratories, National Bakery Divn., Great Atlantic & Pacific Tea Co., New York, N. Y.

Steinbach, Maxim, M.D. Research Associate in Bacteriology, Columbia University, New York, N. Y.

ACTIVE MEMBERSHIP

Barol, Alfred, B.Sc., Biology, Chemistry. Director, Wyeth Institute of Applied Biochemistry, Philadelphia, Pa.

Barr, Richard Henry, M.D., Cardio-vascular Diseases. Asst. Resident, Medical Service, New York Hospital, New York, N. Y.

Bloch, Alfred, Ph.D., Biochemistry. Research Chemist, Johnson & Johnson, Highland Park, N. J.

Boerner, Fred, V.M.D., Bacteriology. Associate Professor, Clinical Bacteriology, Graduate School, Philadelphia, Pa.

Borne, Ray, B.A. Asst. in Psychology, New School for Social Research, New York, N. Y.

Brazier, Mary Agnes Burniston, Ph.D., Neurophysiology. Research Fellow, Neuropathology, Harvard Medical School; Research Fellow, Psychiatry, Massachusetts General Hospital, Boston, Mass.

Brent, Bernard J., Dr. Eng. (Chem.), Endocrinology, Vitamins, Chemistry, Physics. Scientific Director, Roche-Organon, Inc., Nutley, N. J.

Bywater, W. G., Ph.D., Organic Chemistry. Director of Research, S. B. Penick & Co., Jersey City, N. J.

Carmel, Joanna, B.A., Psychology. Graduate Student, Forest Hills, L. I., N. Y.

Castillo, Julio C., B.A. Pharmacologist, Wellcome Research Laboratories, Tuckahoe, N. Y.

Cohen, Herman, M.S., Biology, Chemistry. Research Associate, E. R. Squibb & Sons, New Brunswick, N. J.

Dobriner, Konrad, M.D., Metabolism. Chief, Research Chemistry Dept., Memorial Hospital, New York, N. Y.

Earle, David P., Jr., M.D., D.Sc., Medical Research. Asst. Professor, Medicine, New York University, New York, N. Y.

Emerson, Gladys A., Ph.D., Biochemistry, Pharmacology. Head Biochemist, Division of Nutrition, Merck Institute, Rahway, N. J.

Ervin, Clyde D., Ph.D. Research Mycologist, Lederle Laboratories, Inc., Pearl River, N. Y.

Garber, C. Zent, M.D. Pathologist, New York Orthopaedic Dispensary and Hospital, New York, N. Y.

Green, D. F., Ph.D., Biology. Medical Dept., Merck & Co., Inc., Rahway, N. J.

Griffin, Charles A., D.V.M., Biology. Associate Veterinarian Bacteriologist, Divn. of Laboratories & Research, New York State Dept. of Health, Albany, N. Y.

Hamre, Dorothy M., Ph.D., Microbiology. Research Associate, Squibb Institute, New Brunswick, N. J.

Heaton, Louise M., B.A., Viruses. Bacteriologist, Lederle Laboratories, Inc., Pearl River, N. Y.

Kahn, Joseph, Ph.D., Biochemistry. Chemist, Beth Moses Hospital, Brooklyn, N. Y.

Kantrowitz, Abraham R., M.D., Pathology, Biology, Chemistry. Director, Laboratories, and Pathologist, Beth Moses Hospital, Brooklyn, N. Y.

Karr, Walter G., Ph.D., Pharmaceutical and Medical Chemistry. Director, Research Laboratories, Smith, Kline & French Laboratories; Asst. Professor, Physiological Chemistry, University of Pennsylvania; Consulting Biochemist, Medical Clinic, University of Pennsylvania, Bryn Mawr Hospital, and Abington Memorial Hospital, Philadelphia, Pa.

Kittredge, Winifred, M.A., Psychology, Pathology. Private practice, Speech pathology, New York, N. Y.

Klein, Bernard, B.S., Organic Chemistry. Graduate Student, Brooklyn Polytechnic Inst., Brooklyn, N. Y.

Laszlo, Daniel, M.D., Cancer Research. Medical Associate, Montefiore Hospital, New York, N. Y.

Levy, Hilton B., M.A., Biochemistry. Research Chemist, Memorial Hospital, New York, N. Y.

Linegar, Charles R., Ph.D., Pharmacology. Chief, Biological Development & Control Laboratories, E. R. Squibb & Sons, New Brunswick, N. J.

Lorenz, Fred W., Ph.D. Physiologist, White Laboratories, Inc., Newark, N. J.

Mann, Conklin, A.B., History. Vice President, Campbell-Stanford Advertising Agency, New York, N. Y.

Mollov, Mollie, M.S. Bacteriologist, Queens General Hospital, Jamaica, L. I., N. Y.

Morales, Manuel F., Ph.D., Biophysics, Physical Chemistry. Instructor, Mathematical Biophysics, University of Chicago, Chicago, Ill.

Moser, George C., Ph.D., Psychology. Vocational Adviser, Brooklyn College Veterans' Advisement Unit, Brooklyn, N. Y.

Moyer, Arden Wesley, Ph.D., Biochemistry, Nutrition, Immunology. Instructor, Biochemistry, Cornell University Medical College, New York, N. Y.

Mozingo, Ralph, Ph.D., Organic Chemistry. Chemist, Merck & Co., Inc., Rahway, N. J.

Novotny, Dorothy, B.A., Biology, Bacteriology, Chemistry. Bacteriologist, Lederle Laboratories, Inc., Pearl River, N. Y.

Ogur, Maurice, M.A., Biochemistry. Instructor, Chemistry, Brooklyn College, Brooklyn, N. Y.

Park, S. E., Ph.D., Bacteriology, Biochemistry. Literature & Advertising Divn., Lederle Laboratories, Rockefeller Plaza, New York, N. Y.

Poppensiek, George C., V.M.D., Veterinary Medicine. Dept. Head, Animal Industry Divn., Lederle Laboratories, Inc., Pearl River, N. Y.

Randeberg, Ragnvald, B.S., Psychology. Research Co-ordinator, Klein Inst. for Aptitude Testing, New York, N. Y.

Rosebury, Theodor, D.D.S. Associate Professor, Bacteriology, Columbia University, New York, N. Y.

Scheuer, Joseph S., P.D., Physics, Chemistry. Director, Research, Scott & Brown, Bloomfield, N. J.

Smith, Dorothy G., B.A., Microbiology, Chemotherapy. Research Asst., Dept. of Chemotherapy, Merck Institute, Rahway, N. J.

Smith, Harriet Hull, M.D., Internal Medicine. Asst. Resident, New York Hospital, New York, N. Y.

Smith, Lawrence Weld, M.D., Antibiotics, Pathology. Medical Director, Commercial Solvents Corp.; Medical Consultant, Rystan Co., New York, N. Y.

Stein, Ann M., M.A., Child Guidance. Teacher, Biology & General Science, New York City Junior High School, New York, N. Y.

Stoner, William Hoy, Ph.D., M.D., Sc.D., Endocrinology. Medical Research Consultant, Schering Corp., Bloomfield, N. J.

Vollmer, Hermann, M.D., Biology, Psychology. Asst. Pediatrician, Vanderbilt Clinic, Columbia University, New York, N. Y.

Waelsch, Heinrich, M.D., Ph.D. Asst. Professor, Biochemistry, Columbia University; Associate Research Biochemist, New York Psychiatric Institute & Hospital, New York, N. Y.

ASSOCIATE MEMBERSHIP

Cheldelin, Vernon H., Ph.D., Biochemistry. Associate Professor, Chemistry, Oregon State College, Corvallis, Oregon.

Fox, Portland P., B.S. Regional Geologist, Bureau, Reclamation, Billings, Mont.

Glickman, Myra R., B.S., Endocrinology, Bacteriology. Endocrinologist, Research Laboratory, Reed and Carnrick, Jersey City, N. J.

Huttrer, Charles P., Ph.D., Chemistry, Biochemistry, Biology. Research Chemist, Ciba Pharmaceutical Co., Summit, N. J.

Kiessling, LaVerne L., M.A., Biochemistry. Research Asst., Bureau, Biological Research, Rutgers University, New Brunswick, N. J.

STUDENT MEMBERSHIP

Davis, Sanford, B.S., Physical Chemistry, Biophysics. Matiello Research Fellow, Brooklyn Polytechnic Institute, Brooklyn, N. Y.

Meyer, Walter, M.S., Biochemistry. Research Chemist, Goldwater Memorial Hospital, Welfare Island, New York, N. Y.

Singer, Seymour, A.M., Physical Chemistry. DuPont Research Fellow, Polytechnic Institute, Brooklyn, N. Y.

Vroman, Mary Alice, Medicine. Technical Librarian, Lederle Laboratories, Inc., Pearl River, N. Y.